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Attitudes of German Companies Regarding the Implementation of an Emissions Trading Scheme

A Qualitative and Quantitative Analysis

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O Summary

This paper has two objectives. First, it aims to provide an overview of German companies' level of knowledge and their opinions on emissions trading. Second, it attempts to stimulate the current debate on the implementation of an EU-wide emissions trading scheme. For this, the empirical data presented in this paper provides a basis to evaluate some of the arguments in the debate on the implementation of an emissions trading scheme. The data enables assessment of both the quality of a critique's underlying arguments and its ability to be generalised for those companies most likely to be affected by the implementation of an emissions trading scheme.

The study underlying this paper consists of two empirical parts. First, in the quantitative part, a postal survey was conducted. It was based on a random sample of companies throughout the main energy intensive industry sectors in Germany. The sample therefore cannot claim to be representative of German industries as a whole. However, it well serves to display tendencies among those sectors that would be affected by the implementation of the discussed European directive for an EU-wide emissions trading scheme.¹ Second, in the qualitative part, personal interviews with selected representatives from six companies, from two German federal ministries, and from the BDI² were conducted. These interviews are to complete the findings drawn from the quantitative part.

The study first and foremost displays the disparities among the opinions on emissions trading. Generalisations representative of all companies surveyed are only partly possible. The following thesis can be concluded from the analysis of the data:

- The level of knowledge regarding emissions trading among German companies is very limited. A formation of opinion has not yet begun within the majority of the companies.
- The complexity of the issue of emissions trading is too high for single positions to conceivably represent German companies as a whole. Especially, as our interviews manifest, opinions among experts are quite diverse. Brief

¹ Full title: *European Commission for a Proposal for a Directive of the European Parliament and of the European Council establishing a framework for greenhouse gas emissions trading within the European Community*. For the current version, see: http://europa.eu.int/comm/environment/climat/com/01581_en.pdf

² *Bundesverband der deutschen Industrie*, the German umbrella organisation of German business associations.

positions of certain companies or business associations, whether positive or negative, do not mirror the diversity of opinions on emissions trading.

- Companies do not have a common preference for one policy instrument. Similarly, there is no common preference for a specific design of an emissions trading scheme. Yet, it appears that a mandatory trading scheme would be preferred, while voluntary participation was criticised for being sub-optimal.
- The majority of the companies do not anticipate emissions trading to be a significant cost burden to their business, but to be either neutral in costs or a prospective source of income. This finding questions the common impression that a large share of German companies would fear the costs of an emissions trading scheme.

To prepare companies for the coming introduction of an emissions trading scheme, this study concludes that companies need to receive much more comprehension on the functioning of the instrument and on the strategic options they have to answer it. There is great need for information, especially among small and medium sized enterprises. As the survey also shows, companies are not well integrated into the work of their business associations concerning emissions trading. Furthermore, the government does not provide enough information on the issue. It therefore appears to be indispensable to increase the provision of information in order to adequately prepare companies for the new chances and challenges they will face with that instrument.

This paper is structured as follows. The first two chapters provide an overview of the context of this study and the methodology applied. Chapter 3 encompasses the quantitative analysis presenting the results from the postal survey. Chapter 4 then encompasses the qualitative analysis presenting relevant opinions from the interviews conducted. The last chapter tries to merge the findings from both the quantitative and the qualitative analysis by interpreting the main results of this study. In the annexes to this paper, there are both questionnaires as well as a table displaying all answers from the postal survey in relation to the respective questions asked. For those readers only briefly interested in this study, chapter 5 with the interpretations and the conclusions will summarise the main findings, while for other readers, this paper also provides more detailed information within the other chapters.

1 Background and Objectives

After the successful climate negotiations in Marrakesh in November 2001, the entry into force of the Kyoto Protocol imposing binding obligations for greenhouse gas emission reductions is very likely.³ This would entail the entry into force of a global emissions trading scheme, although at the beginning, this would be limited to trading between nations. The debate about emissions trading in Germany became increasingly vital after a confidential draft version of the European Commission proposal for a directive on EU-wide emissions trading became public in June 2001.⁴ Among other things, this European Commission proposal determines those industry branches that would have to participate in a mandatory cap and trade emissions trading. In the ensuing debate about the proposal, the question of mandatory versus voluntary participation remained pivotal.

In Germany, the discussion about the design and about options for the implementation of a trading scheme was concentrated in the German Emissions Trading Group.⁵ This group was established due to an initiative of the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety in collaboration with a couple of German companies, following the example of the British Emissions Trading Group.⁶ Members of the German group were about 30 mostly large companies, several business associations, representatives of the German government, of state governments, and of the German Parliament, as well as representatives from environmental NGOs. The group primarily aimed at discussing options of a German emissions trading scheme. However, it also commented on the above named European Commission proposal. Due to severe differences in opinion between supporters and opponents of an emissions trading

³ See, for example, Ott, Hermann E., *Climate Policy after the Marrakesh Accords: From Legislation to Implementation*, in: Yearbook of International Environmental Law, Vol. 12 (2001), Oxford 2002; Ott, Hermann E., *The Bonn Agreement to the Kyoto Protocol - Paving the Way for Ratification*, in: International Environmental Agreements: Politics, Law and Economics, Vol. 1, No. 4, October 2001; Brouns, Bernd/Santarius, Tilman, *Die Kyoto-Reduktionsziele nach den Bonner Beschlüssen*, in: Energiewirtschaftliche Tagesfragen, September 2001. See also our Webpage with additional relevant articles: <http://www.wupperinst.org/COP7/english.html>; or in general: Oberthür, Sebastian/Ott, Hermann E., *The Kyoto Protocol. International Climate Policy for the 21st Century*. Berlin, 1999.

⁴ Full title: *European Commission for a Proposal for a Directive of the European Parliament and of the European Council establishing a framework for greenhouse gas emissions trading within the European Community*. For the current version, see: http://europa.eu.int/comm/environment/climat/com/01581_en.pdf, or in general, see the webpage of the European Climate Change Programme at <http://europa.eu.int/comm/environment/climat/eccp.htm>.

⁵ Original title in German: "Arbeitsgruppe Emissionshandel zur Bekämpfung des Treibhauseffektes".

⁶ For more information on the British Emissions Trading Group, see <http://www.uketg.com>.

scheme, by the end of 2001 the existence of the group beyond that year was in question. In the internal disputes, among other things, discussions about the European Commission proposal played a crucial role.

This paper attempts to provide a basis to evaluate some of the critique. The empirical data presented enables assessment of both the quality of the critique's underlying arguments and its ability to be generalised for those companies most likely to be affected by the implementation of the above named European directive for an EU-wide emissions trading scheme. The paper therefore has two objectives. First, it aims to provide an overview of German companies' level of knowledge and their opinions on emissions trading. Second, more specifically, the paper attempts to stimulate the current debate on the implementation of the EU-wide emissions trading scheme. Not only is the general level of knowledge on emissions trading among German companies very limited (one of the main results), but our study reveals that opinions of experts are very diverse as well.

The research that underlies this paper was initially carried out for the purpose of developing an explanatory brochure on emissions trading at the WUPPERTAL INSTITUTE.⁷ In order to make sure that the brochure will satisfy the demand for information of those companies most likely affected by an emissions trading scheme, information was gathered among selected industrial sectors to provide the authors with accurate data on companies' perspectives and their knowledge about emissions trading. Yet, the quantitative analysis in this paper cannot claim to be representative of German companies on the whole. Methodologically, it has an explorative character. However, the quantitative analysis displays distinct tendencies for those sectors designated to take part in the EU-wide trading. In addition, in a second step, qualitative interviews with experts have been conducted and analysed in respect to the quantitative findings.

This study therefore provides a quantitatively based picture of the level of information and the attitudes concerning emissions trading in general and the proposal of the European Commission in specific. With the qualitative interviews, it also provides some insights into the underlying thinking processes that result in the expression of those attitudes. The authors hope to constructively nourish the debate and the implementation of an emissions trading scheme in Germany and in the EU. Emissions trading as part of a policy mix has the potential to become one of the pillars in the German and European effort to effectively mitigate climate change.

⁷ The brochure will aim to instruct companies about the general functioning of emissions trading and its various possible design features. Thereby, it also contributes to stimulating the rising discussion in Germany about emissions trading and to serving as an information manual for those companies that wish to participate in the debate and in practice.

2 Methodology

The methods applied encompass both quantitative and qualitative social research methods. The quantitative method includes a postal survey based on a random sample of companies. The qualitative method involves personal interviews with selected representatives from six companies, from two German federal ministries, and from the BDI, the umbrella organisation of German business associations. For the quantitative research, companies were addressed with written, highly standardised multiple-choice questionnaires, which were sent to them by mail. In contrast, questions in the personal interviews were only partly standardised with all questions being open and each question allowing for narrative excursus by the interviewees. Therefore, methodologically, the quantitative and the qualitative research effectively complement one another.⁸

For the quantitative part, the postal questionnaire was developed along the following key questions:⁹

- What are companies' general attitudes towards environmental policies and measures?
- How are companies informed about emissions trading?
- From where do companies receive information about emissions trading, and how do they participate within their business associations regarding this issue?
- How do companies assess the future importance of emissions trading for their business?
- How do companies assess the impact of emissions trading — and do they anticipate to benefit from emissions trading, or do they rather expect competitive disadvantages?
- How do companies evaluate current initiatives by the European Commission relating to emissions trading?

The authors are aware that some of the questions can only be answered properly after the design of an emissions trading system has been defined. For example, the economic effects anticipated with the implementation of an emissions trading system certainly depend, among other things, on the specific setting of targets and the method of allocating the permits. Yet, these questions have been asked

⁸ See Siegfried Lamnek: *Qualitative Sozialforschung. Band 2: Methoden und Techniken. 3. korrigierte Auflage. Weinheim, 1995*, p. 36ff.

⁹ Both the postal questionnaire of the quantitative part and the interview guide of the qualitative part are attached in the annexes to this paper. Note that the questionnaires in Annex I and Annex II are in German, while the table showing the results in Annex III is in English and also includes the questions asked.

because they convey the dispositions of companies towards emissions trading and how well they are informed. Of course, the rather open questions have intensively been discussed in the interviews.

The survey took place between October and November 2001. Questionnaires were sent to 391 companies. Companies were selected randomly from the population¹⁰ but according to two qualifications. First, in order to increase the possibility that companies would be directly affected by an emissions trading scheme, only companies from energy intensive sectors were included in the database. Second, large companies and medium sized companies have been equally balanced,¹¹ with two exceptions. First, regarding medium sized companies from the chemical sector, only companies that produce basic chemicals were included in order to exclude less energy intensive companies. Second, no medium sized paper or pulp companies were included because the data suggested that the vast majority would also not produce energy intensively. The final record is displayed in table 1:

Table 1: Data sample of the postal survey

Sector	Large Companies	Medium sized Companies	Total
Energy supply*	56	69	125
Manufacture of coke and refined petroleum products	28	18	46
Manufacture of other non-metallic mineral products	39	32	71
Manufacture of basic metals and fabricated metal products	27	26	53
Manufacture of chemicals and chemical products	36	27	63
Manufacture of pulp, paper and paper products	33	0	33
Total	219	172	391

* The category "Energy Supply" includes supply of electricity, gas, and district heating. Therefore, more companies have been recruited from this sector.

¹⁰ The data of the population has been derived from *Hoppenstedt: Hoppenstedt-Buch-CD/Grossunternehmen 2000* as well as from *Hoppenstedt-Buch-CD mittelständische Unternehmen, 1996*.

¹¹ Large companies are defined as companies with either more than 10 Million Euro annual turnover or with more than 150 employees. Medium sized companies are defined as companies with either more than 1 but less than 10 Million Euro annual turnover or with more than 20 but less than 150 employees. This differentiation follows *Hoppenstedt (2000)*, see above.

The quantitative method allows for distinct sector-specific analysis and ensures that a sufficient number of companies from those energy intensive sectors have been involved which are most likely to participate in emissions trading. Therefore, the sample cannot claim to be representative of German companies on a whole. However, it serves well to display tendencies among the respective sectors addressed.¹² Regarding a representative extrapolation for German companies on the whole, this study only has an explorative character.

For the qualitative part, guideline-based personal interviews with selected experts were conducted. The interview guide was developed along the following key questions:

- What are general attitudes to national and EU-wide environmental policies and measures?
- How do company representatives themselves assess the level of knowledge of German companies about emissions trading?
- What are (political) obstacles to implementing an emissions trading scheme?
- What attitudes do companies have towards the form of participation in an emissions trading scheme?
- What are the interviewees' assumptions regarding the economic effects of emissions trading?
- How do they evaluate the European Commission proposal for a directive on EU-wide emissions trading?

The interviews took place face-to-face during late September and October 2001. Nine interviews were conducted lasting approximately 45 minutes each. The interviews encompass representatives from six companies, who are all known to be experts in the German debate about emissions trading. Since their opinions are well known, they have been chosen according to their assumed attitude towards emissions trading, as table 2 displays. This is to ensure that diverse perspectives feed into the analysis, with both opponents and supporters of emissions trading.¹³ Table 2 also displays that the interviews additionally encompass two representatives from the government and one from the BDI. As "external experts", their opinions serve to complete the views on the companies' level of knowledge and their attitudes.

¹² An inquiry into opinions of German companies as a whole was not the aim of the analysis, which was rather to provide the authors with specific data in order to design an emissions trading information brochure for those companies most relevant to an emissions trading scheme.

¹³ However, as our analysis will display, the assumed attitudes could not be reaffirmed for all interviewees, and the representatives' attitudes were far more differentiated after having examined details of emissions trading.

Table 2: Database for personal interviews

Institution¹⁴	Assumed attitudes to ET
Electricity company A	Pro
Electricity company B	Contra
Natural gas company	Contra
Mineral oil company A	Pro
Mineral oil company B	Pro
Chemical company	Contra
Ministry of Economics (BMWi)	–
Ministry of Environment (BMU)	–
BDI	–

¹⁴ Because all interviewees were guaranteed anonymity, here and in the following they are only referred to by their type of company.

3 Quantitative Analysis

Participation in the survey

From the 391 companies addressed, 49 companies filled in the questionnaire, which equals 12.5 percent. Table 3 displays the replies.

Table 3: Breakdown of the replies from the postal survey

Sector	Large Companies	Medium sized Companies	Total	Total in %
Energy supply	13 / 56	7 / 69	20 / 125	16.0%
Manufacture of coke and refined petroleum products	5 / 28	0 / 16	5 / 47	10.8%
Manufacture of other non-metallic mineral products	4 / 39	3 / 32	7 / 71	9.9%
Manufacture of basic metals and fabricated metal products	3 / 27	1 / 26	4 / 53	7.6%
Manufacture of chemicals and chemical products	6 / 36	5 / 27	11 / 63	17.5%
Manufacture of pulp, paper and paper products	2 / 33	–	2 / 33	6.1%
Total	33 / 219	16 / 172	49 / 391	12.5%

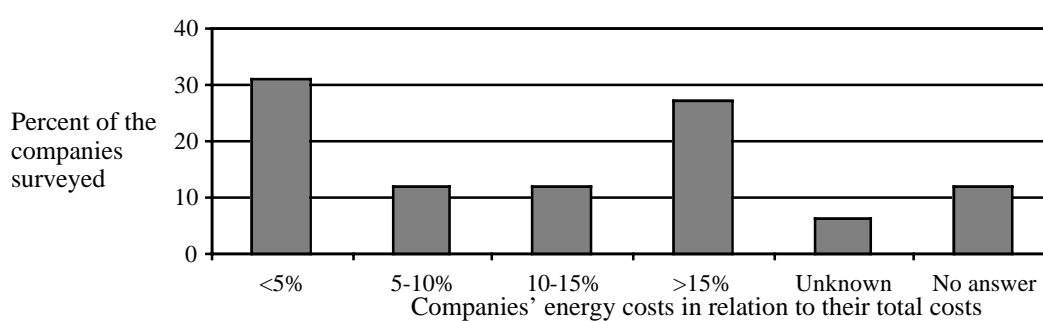
As the issue of ET is presumably rather unknown to many companies, the 12.5 percent share of replies is quite satisfactory. However, it does not allow for a sector based argumentation in the case of all sectors. In the following, therefore, sector based argumentation will only refer to the energy and the chemical sector. Those two sectors both have a proportionally high reply quota with more than 15 percent (in numbers: 20 out of 125 (energy) and 11 out of 63 (chemical)). Yet, sector specific results are only presented when they significantly deviate from the overall outcome.

A few companies and one business association declined to participate in our survey. The German Pulp and Paper Association (VDP) asked all its member companies not to respond to our questionnaire. The association informed us that in their opinion, our survey was too early and politically too critical to be answered. However, two companies did respond before the request of that association reached them. Their answers have been included. Besides, a few other companies rejected participation in our survey. Four medium sized energy providers argued that they did not produce energy themselves and therefore did not see the necessity to deal with the issue at all. A similar reason was expressed by one chemical company that declared itself to be a distribution and marketing company only. Three other companies mentioned personal reasons for not participating in the survey.

General information about the participating companies

Half of the companies addressed, and half of the energy companies as well, operate one or more combustion installations with a capacity exceeding 20 MW. This indicates that a large share of these companies would actually be directly affected by the implementation of the proposed EU-wide trading scheme. Asked for energy costs in relation to overall costs, as figure 1 shows, responses are equally distributed. This survey thus covers both quite energy intensive companies as well as less energy intensive ones. Almost half of them are characterised by more than 10% energy costs among their total costs.

Figure 1: Companies' energy costs in relation to their total costs



The equal distribution with one third of the companies being less energy intensive (<5% energy costs) and one third being quite energy intensive (>15% energy costs) insures that our analysis has no prejudice towards highly energy intensive companies.

General attitudes to environmental policies and measures¹⁵

Asked how the government should realise greenhouse gas reductions within the industrial sector in order to reach the government's self-imposed greenhouse gas reduction target,¹⁶ companies had the choice to mark one or more of the following options:

Table 4: Preferences for policies and measures to reduce industrial greenhouse gas emissions

Options	Companies in %
• To improve Voluntary Agreements, e.g. to strengthen targets and to add sanctions for non-compliance	34.7%
• To implement new or strengthen existing standards and directives for energy efficiency	30.6%
• To implement an emissions trading scheme with mandatory emission caps	30.6%
• Not to implement any further measures	18.4%
• To improve the Ecological Tax Reform, e.g. to cancel exceptions and to increase tax rates	14.3%
• Other	22.4%
No answer	6.1%

As our survey shows, companies to a similar extent favoured an improvement in existing voluntary agreements, command and control measures (like standards or directives), and a mandatory cap and trade emissions trading scheme. As for the chemical companies surveyed, 73% favoured to continue using voluntary agreements. Interestingly, just 18% of all companies investigated declared that no more measures should be implemented. In the energy sector, only 10% of the companies demanded this, while 36% of the companies from the chemical sector marked no more measures.

However, one third of those companies demanding “not to implement any further measures” also marked other options at the same time. Among those, “emissions trading” and “standards or directives” were marked most frequently. Most of those companies marking more than one option were from the energy sector: 60% of the energy companies marked two or multiple options. The combination of these responses was evenly spread over all possibilities. The chemical companies

¹⁵ Tables listing the full results of the survey are included in the annex of this paper.

¹⁶ This reduction target aims to reduce 25% of carbon dioxide emissions in 2005 compared to 1990 levels.

with 27% over proportionally double-marked “voluntary agreements” and “emissions trading”.

Among those that marked “other” preferences for policies and measures to reduce industrial greenhouse gas emissions, companies suggested a variety of different options: “to implement combined heat and power”, “to improve information about the use of energy”, that “no measures with bureaucratic consequences” should be implemented (this company also opted for emissions trading), “to continue with the voluntary agreements”, that “measures should only be implemented when harmonised at the European level”, to “advise and financially support energy intensive industries”, “to support medium sized enterprises and not to destroy them”, “to not add instruments but to combine them to a reasonable policy mix”, “to give incentives for products produced energy efficiently”, and “to act globally because of international competition”.

Asked whether they would prefer measures to be combined to a coherent, reasonable policy mix, 59% of the companies in our survey answered yes and only 10% answered no. 25% of the companies declared that they did not have an opinion.

The level of knowledge of German companies regarding the issue of emissions trading

Several questions asked for the level of knowledge regarding emissions trading, from where companies receive their information, and how they participate in the information work of their respective business associations. As figure 2 outlines, companies were asked up front how they themselves assess their level of knowledge. The vast majority declared themselves to be either poorly or not informed at all about emissions trading.

Figure 2: Self-assessment of companies' level of knowledge

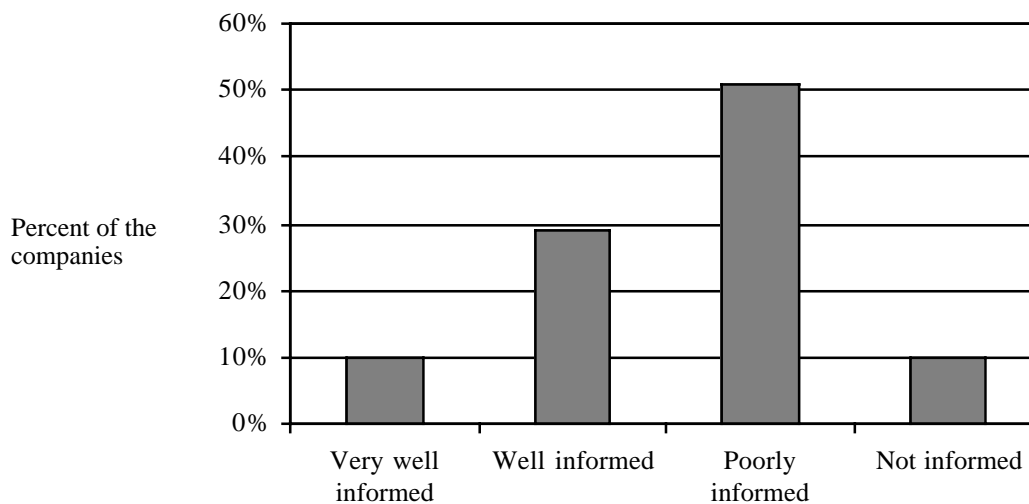
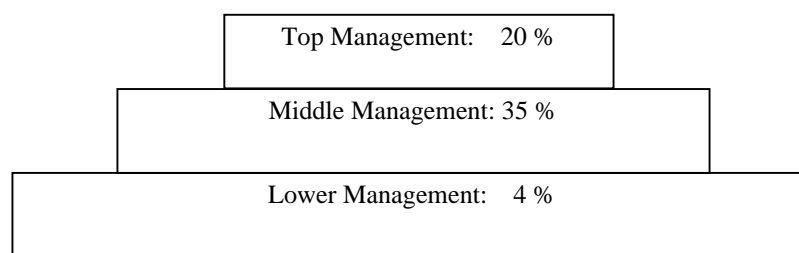


Figure 3 displays at what corporate level companies deal with the issue of emissions trading. The numbers in that figure show that surprisingly many companies deal with the issue at rather high corporate levels. However, 47% of the companies surveyed stated they did not deal with emissions trading at any level.¹⁷ When asked separately whether companies would strategically deal with the issue of emissions trading, three quarters of the companies answered they would not, while only one quarter stated they would.

Figure 3: Corporate level at which companies deal with the issue of emissions trading

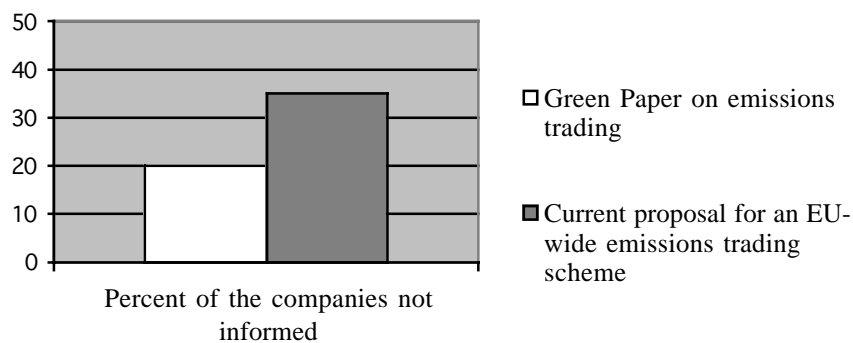


Correlating the two questions (strategically deal with/corporate level) reveals that only two thirds of those companies that stated they would not strategically deal with the issue of emissions trading consistently affirmed that emissions trading would not be dealt with at any corporate level. The remaining third seems to deal with emissions trading at some corporate level, but not strategically.

¹⁷ The percent in figure 3 plus the 47% of those companies that declared they did not deal with the issue of emissions trading at any corporate level equals more than 100% due to double-marking.

When companies were specifically asked whether they are informed about recent European Commission initiatives regarding emissions trading, even more companies characterised themselves as being poorly informed. As figure 4 displays, the majority of the companies neither knows the Green Paper on greenhouse gas emissions trading within the European Union, which was published in Spring 2000, nor the preliminary draft proposal for EU-wide emissions trading¹⁸.

Figure 4: Level of information about recent European Commission initiatives



Interestingly, one third of those companies that stated they would strategically deal with the issue of emissions trading said they are not informed about the green paper, and almost two thirds of them were not informed about the draft European Commission proposal for a directive on EU-wide emissions trading. Likewise, almost one third of those companies that stated they were well informed about emissions trading said they did not know the green paper, and two thirds of those did not know the current proposal for the directive. This might indicate some inconsistencies in the answers. It might also show that some of those companies which evaluated themselves as “informed” about emissions trading were not properly informed about the actual political processes relating to this issue.

Concerning the sources where companies obtain information about emissions trading, as table 5 shows, one or more of the following options were marked.

¹⁸ Full title as already mentioned above: *Proposal for a Directive of the European Parliament and of the European Council establishing a framework for greenhouse gas emissions trading within the European Community.*

Table 5: Sources of information on the issue of emissions trading

Options	Companies in %
• From the sector business association	69.4%
• From the BDI	22.5%
• Own expert in the company	20.4%
• From environmental NGOs	14.3%
• From the German government	10.2%
• From the European Commission	8.1%
• From a consultancy	6.1%
• Others	28.6%
No answer	10.2%

These answers certainly highlight the role of business associations. While the majority of companies claimed to receive information from their sectoral business associations, the BDI also serves as an important source of information. On the other hand, a small proportion of only 10% stated that they received information from the German government.

20% of the companies marked having an “expert in the company”. This category intuitively appears to be quite high. One might assume that the majority of those 391 companies addressed by our survey that do have an expert did answer our questionnaire, while those without an expert might have been more biased not to answer. Therefore, among the 49 companies analysed here, companies with emissions trading experts might be represented over proportionally.

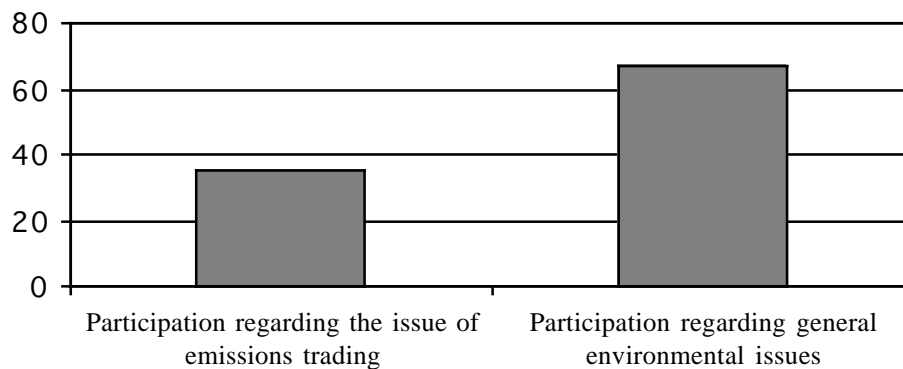
Almost one third of the companies stated that they gain information about emissions trading from other sources, i.e.: “the Internet”, from “literature” or from “respective journals”, from “seminars” or “congresses”, from “the state ministry of Baden-Wurttemberg”, or, as 6 companies wrote, from “newspapers” and the “media”.

Participation of companies in their business associations’ activities concerning emissions trading

Regarding the question whether companies are actively engaged in the work of their business associations on general environmental issues, as figure 5 outlines, two thirds of the companies declared they were involved in the work of their

respective association. One third said they were not involved. Additionally, 20% of the companies also declared to be engaged in the environment related work of the BDI.

Figure 5: Involvement in business associations' activities concerning general environmental issues and the issue of emissions trading



When companies were asked whether they participate in their associations' formation of opinion specifically regarding the issue of emissions trading, only one third declared they did participate in their sector association, and 16% of the companies additionally participated in the BDI's formation of opinion. Two thirds of the companies did not participate in their business associations' work regarding emissions trading at all, which appears to be a surprisingly high number. This lack of participation might in part explain the rather low quality of the information provided by business associations.

Companies' assessment of the importance of the issues of greenhouse gas emissions and emissions trading

The companies in our survey were asked for their assumptions on the future importance of the issue of greenhouse gas emissions. They could choose between the option that greenhouse gas emissions would be

- “a political issue, therefore strategically of little importance to the company”,
- “a drastic cost burden, therefore important to the company's business management”, or
- “of future strategic importance to the company with a lucrative market potential”.

This broad question was asked in order to get a sense of the general feelings and dispositions about the growing importance of the issue. Answers were very

equally spread among the three options, with one third of the companies having marked each option.

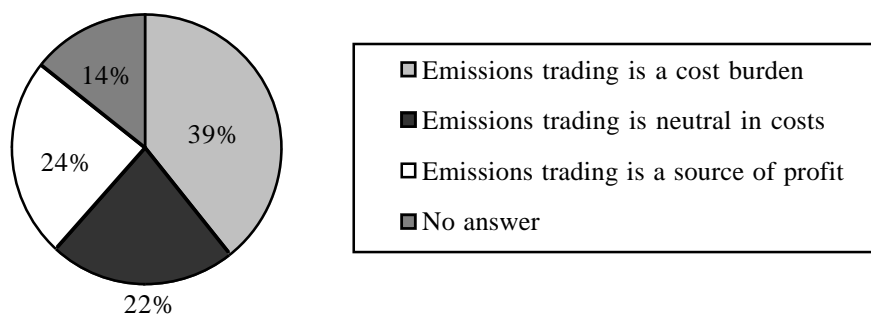
Interestingly, 65% of the energy companies marked option three and therefore expect the issue of greenhouse gases to bear a lucrative market potential. In contrast, 73% of the chemical companies marked option one: “a political issue, therefore strategically of little importance to companies”. Many chemical companies therefore appear to underestimate the future importance of this issue, especially for their own business.

Furthermore, companies were asked whether they anticipated making use of the Kyoto Mechanisms, especially of the project-based instruments *Joint Implementation* and the *Clean Development Mechanism*, 39% announced that they did not know yet. Only 23% responded that they plan to make use of the mechanisms, while 33% expected not to make any use of them. Concerning the chemical companies, 64% stated they did not plan to make use of the Kyoto Mechanisms.

Companies’ assumptions regarding the economic effects of an emissions trading scheme

Quite generally, companies were asked to estimate the effects of an emissions trading scheme. They could choose whether they anticipate a trading scheme to be “neutral in costs”, to be “a cost factor”, or to be “a source of profit”. Figure 6 shows the results. The rate of companies that did not answer this question was rather high (14%), possibly indicating the high degree of uncertainty on this question.

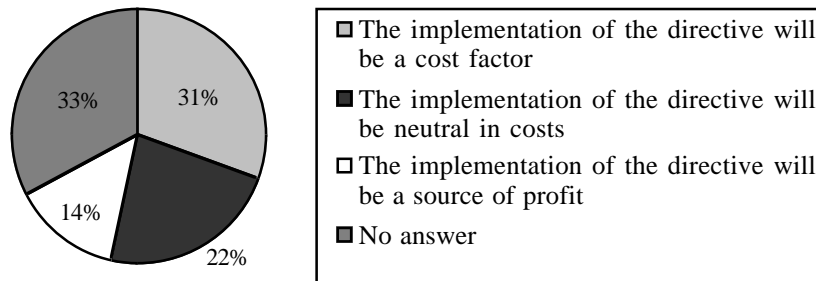
Figure 6: Companies’ general assumptions on the economic effects of emissions trading



Likewise generally, companies were asked what effects their businesses expected from the implementation of the Kyoto Protocol. 33% of the companies predict the Kyoto Protocol to be neutral in costs to their business, and 10% expect it to be a source of revenues. 45% of the companies expect it to be a cost factor, and 8% were not sure about the effects. On the whole, therefore, a slight majority of the companies surveyed expect either none or positive effects from the Kyoto Protocol. As regards the energy sector, 30% expect it to be neutral in costs and 25% anticipate it to be a source of income, while only 35% expect the Protocol to be a cost factor. From the chemical sector, in contrast, no company marked “neutral in costs”, 46% prognosticate it to be a cost factor and 36% envision it to be a source of income.

More specifically, companies were asked what kind of effects they expect from the implementation of the draft European Commission proposal for a directive on EU-wide emissions trading. Since 33% of the companies did not answer this question, the rate of uncertainty was thus very high. This relates to the low level of information (see above). Figure 7 displays the findings.

Figure 7: Companies’ assumptions on the economic effects of the European Commission proposal for a directive on EU-wide emissions trading

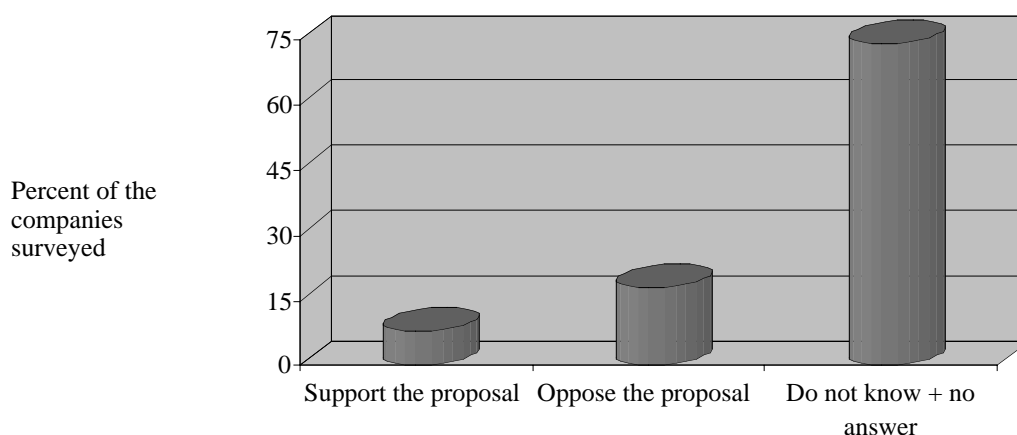


Interestingly, in the energy supply sector, of those companies that answered the question, 40% expect the draft directive to be neutral in costs, while 40% expect it to be a source of income. Only 20% marked that it might be a cost burden.

Attitudes towards the European Commission proposal for an EU-wide emissions trading scheme¹⁹

In addition, companies were asked how they evaluate the draft proposal for a directive on EU-wide emissions trading. Again, similar to the preceding question, 18% did not answer this question. Another large share marked “do not know”. Figure 8 summarises the results.

Figure 8: Evaluation of the European Commission proposal for EU-wide emissions trading



As reasons for their position towards the directive, companies explained: “no comprehensive implementation is possible and therefore specific companies are at a disadvantage”, that emissions trading is “a source of income”, that “companies face global competitive disadvantages”, that “global emissions trading is not effective and only realises no-regrets”, that “the directive is not compatible to the current German voluntary agreements”, that “early actions need to be considered, all greenhouse gases need to be included, and both Joint Implementation and the Clean Development Mechanism need to be integrated into the proposal”, and that the proposal “is not focussed enough on the German situation, where sources of carbon dioxide with high potentials to be reduced are: energy transformation, the transport sector, and private consumption”.

¹⁹ Note that at the time when the survey was conducted, the proposal was not yet officially published. It was only available as a draft version.

4 Qualitative Analysis

Regarding the qualitative part of our analysis, as explained in the chapter on the methodology, nine interviews were conducted comprising representatives from six companies as well as two representatives from the government and one from the BDI, the umbrella organisation of German business associations. Reactions to our request for the interview were very positive and interviewees were open-minded regarding the topic. In the following, due to requests for anonymity, these representatives will not be referred to by name or company, but as outlined in table 2 above.

General attitudes to environmental policies and measures

First and foremost, it should be mentioned that none of the representatives opposes emissions trading in principle, and all interviewees agree that there are some advantages of emissions trading compared to other instruments. Yet, their statements vary regarding the practical implementation of the scheme. Electricity company A and both mineral oil companies highly support emissions trading in general. Both the representative of electricity company A and that of mineral oil company A emphasise the necessity for further climate protection measures as well as the monetary market potential of a trading scheme. The representative of mineral oil company B emphasises the high efficiency of the instrument. At the same time, the three representatives have great doubts about the functioning of the current scheme of voluntary agreements.

The representative of electricity company A calls industry-based emissions trading to be the most cost-efficient and most environmentally effective instrument available. The representative of mineral oil company A also upholds emissions trading to be the most appropriate instrument available. They are the clearest supporters of emissions trading. Like the representative of mineral oil company B, both strongly favour emissions trading compared to other measures. Both representatives as well as the representative of the natural gas company support the implementation of a trading scheme. Nevertheless, they think that the present measures of German industry are sufficient to meet the German climate protection target of the EU Burden Sharing Agreement. The representative of the natural gas company adds that emissions trading is more suitable than other market-based instruments for ensuring the precautionary principle.

Besides these quite positive points of view, there were also some more critical voices among our interview partners. For example, the representative of the BDI doubts the cost-efficiency of emissions trading. While the representative of the Federal Ministry of Economics and Technology (BMWi) outlines emissions trading to be the most cost-efficient instrument in theory, he more carefully concedes that foremost, this has to be proven in practice. The representative of the chemical company explains that voluntary agreements provide more flexibility to companies than, for example, an emissions trading scheme or the Ecological Tax Reform. Nevertheless, emissions trading can be an appropriate instrument, subject to its design: An early base year for the allocation of permits and thus the taking into account of early actions, the free-of-charge submission of permits, the guarantee that the system is compatible with other instruments for climate protection, the possibility to make use of the project-based mechanisms of the Kyoto Protocol, the possible options of opt-in and opt-out, etc., would certainly encourage his company to vote for an emissions trading scheme. Yet, as he adds, other chemical companies were of a different opinion.

The other interviewees, on the one hand, do admit emissions trading to be appropriate for attaining environmental goals and for increasing economic efficiency, but do not necessarily recommend its early implementation. For example, the representative of electricity company B states that emissions trading should not begin before the second commitment period of the Kyoto Protocol. And for the time being, the representative claims, scientific uncertainties would not yet legitimate any further-reaching reduction goals, like, for example, a voluntary national reduction goal of minus 40 percent by 2020 compared with 1990, as is currently being discussed. Until the first commitment period, however, voluntary agreements would perform best. The majority of the interviewees agree that current measures and the voluntary agreements would suffice to reach Germany's EU burden sharing target.²⁰ In contrast to that, the representative of the first mineral oil company warns that voluntary agreements might not safeguard industries' contributions to meet Germany's objectives because they do not impose absolute targets.

Assessment of the level of knowledge of German companies regarding the issue of emissions trading

All interviewees uniformly agree that the current level of knowledge and information among the vast majority of German companies regarding emissions trading is very low. For most of the companies, their knowledge would not suffice to participate in the debate, because they lack comprehension of the basic

²⁰ They did not mention, however, whether existing instruments also suffice to meet Germany's voluntary reduction goal of -25% in 2005 compared to 1990 levels.

functioning of emissions trading. As for large German companies, however, the representative of mineral oil company A believes that many of them are already well informed about emissions trading, but the representative agrees that small and medium sized enterprises are not well informed. Although some companies and business associations have increased their capacity on this issue, the representative of the Ministry of the Environment (BMU) carefully criticises that business associations are not yet satisfactorily channelling information to their membership. The representative of the BDI, however, stated that his association is active in keeping its members informed. Several sector associations (especially the mineral oil industry, chemical industry, energy suppliers, automotive industry) also already deal with this subject. The representative of the BDI, however, admits that those companies which themselves did not care about information, might still be insufficiently informed.

The representative of electricity company A not only criticises the information level of German companies on both emissions trading and the general background of climate change, but also their prejudices to emissions trading. The representative assumes the position of a large share of German companies to be very sceptical and rather opposing to emissions trading in general. Besides that, unfortunately, the German Emissions Trading Group only serves for an open discussion, but not to develop a German trading scheme. This is partly explained by the representative of the natural gas company that, drawing on the widespread lack of basic information on the functioning of emissions trading, many companies believe that a cap and trade scheme would limit their future growth. Apart from this, many companies do not comprehend that an international or EU-wide scheme does not cause competitive disadvantages.

Obstacles to implementing an emissions trading scheme

Several interviewees regard the opposition of many companies to be the major obstacle to implementing an emissions trading scheme. For example, both governmental representatives as well as the representative of electricity company A perceive the main obstacle to be many companies' fear that an emissions cap could limit their future growth. They agree that this fear generally roots in the lack of understanding how emissions trading functions. Another fear is that transaction costs could be extraordinarily high. The representative of the BDI remarks that companies do not yet have any experience with absolute emission caps.

As the representative of electricity company A explains, many companies also fear that emissions trading would be implemented on top of existing policies and measures. They do not believe that ET would replace some of the existing measures. Prejudices and fear, predetermined by the lack of understanding how

emissions trading functions, also impede companies from anticipating emissions trading to be a reliable long-term policy, which would safeguard companies from short-term political decisions. Furthermore, companies do not realise that by selling emission permits, they could directly make their investments pay for themselves.

Nevertheless, the representative of the natural gas company assumes that the majority of gas and mineral oil companies in Germany, as well as a large share of the electricity generating companies, associate their potential and would principally support emissions trading. According to the representative of mineral oil company B, it depends on the specific design of emissions trading whether a company can profit from its implementation or not.

Yet, the representative of the BMWi mentions that the majority of German companies prefer maintaining the existing voluntary agreements to other instruments. The representative of the chemical company adds that the success of the voluntary agreements has shown that emissions trading with fixed emission caps is not necessary to reach the national goal of climate protection. On the contrary, in the extreme case emissions trading could result in the closing down of production operations in Germany and the setting up of new plants abroad by investing the profit from selling permits. This would not help the climate, but damage the local labour market. According to this representative, the dilemma is as follows: either emissions trading is voluntary, thus obtaining political acceptance, or it is introduced mandatorily, thus reaching higher economic and ecological efficiency, but causing widespread criticism within industry.

Attitudes towards the form of participation in an emissions trading scheme

Regarding the question whether participation should be mandatory or voluntary, all except one interviewee regard a mandatory scheme as preferable and voluntary participation as only second-best. However, several representatives take a pilot phase into consideration in order to gain experience. To some, this pilot phase should be voluntary in the beginning, to others it could be mandatory from the start.

Most strongly in favour of a mandatory scheme are the representatives of electricity company A and of mineral oil company A. According to them, a voluntary scheme would be sub-optimal, because companies with very high marginal reduction costs would probably not take part. Participation in the scheme should be as broad as possible from the beginning. If the permit market is large, average reduction costs could be expected to be as low as possible.

In a similar way, the representative of the chemical company also favours a mandatory trading scheme with all sectors taking part, because voluntary participation would end up in a “club of permit sellers” without any true demand. As the example of Britain shows, only a few firms decided to take part in the cap and trade-emissions trading.²¹ However, there could be a pilot phase, which might be either mandatory from the beginning or voluntary for the moment including incentives to take part in the scheme. In the case of a pilot phase the limitation of the participating companies would be possible if, on a voluntary basis, incentives are given. In the case of a voluntary participation, the representative of energy company A claims considerable economic incentives. After the pilot phase, companies should either choose between different measures or, preferably, the system should be mandatory. Only a mandatory emissions trading scheme would achieve full efficiency: the more companies taking part and the more diverse marginal abatement costs are, the more cost-effective the whole system will be and the better emissions can be controlled. Only the introduction phase would be problematic when emissions trading runs parallel to other existing instruments.

The other interviewees vote more firmly for a voluntary pilot phase. For example, the representative of electricity company B states that participation should be as broad as possible, ideally even mandatory. However, since companies currently already face a variety of measures, participation should be voluntary during the first phase of the scheme. Companies needed to gain experience before the scheme applies mandatorily. During this phase, incentives for participation could be, following the British emissions trading scheme, the exemption of participating companies from the Ecological Tax Reform. The representative of the natural gas company adds that a pilot phase would be useful to reduce the fear of many companies. This representative suggests that if there was a pilot phase, this could be either voluntary or mandatory, but if the scheme was implemented without a pilot phase, participation ought to be voluntary at the beginning.

Least in favour of a mandatory scheme appears to be the representative of the BDI. The representative admits that the association does not necessarily favour a voluntary emissions trading scheme, but demands a voluntary pilot phase. However, according to the representative, it might be possible that after the pilot phase, participants could conclude that a mandatory system is recommendable.

²¹ In the planned British emissions trading scheme, companies can choose whether they participate in the absolute sector or in the relative sector. Companies participating in the absolute sector agree to a company-specific emissions cap, which caps the total emissions of that company. In contrast, those companies participating in the relative sector agree to a unit per output-emissions cap. Those companies do not face absolute emission caps, rather they have to ensure that a given energy efficiency criteria is not exceeded.

Company's assumptions on the economic effects of an EU-wide emissions trading scheme

Seven of the representatives interviewed can imagine Germany becoming a net-seller of permits within an EU-wide trading scheme. Reasons given are that Germany is already close to its EU burden sharing target or that it might be easier for Germany to reach its target than for other European Member States. Only the representative of the BDI fears that, depending on the base year chosen to allocate the permits, in the worst case Germany could become a net-buyer of permits, since it is not yet certain whether Germany will reach its target. Yet, the representative admits that at this time, the BDI is not really able to make any estimation on the economic effects of an EU-wide emissions trading scheme. This is agreed by several other representatives. The representative of the BMWi even refrained from making any assumption since it finally depends on the scheme's specific design. However, he adds that if emissions trading replaces existing instruments, most likely the effects of neither a German nor an EU-wide scheme would be significantly negative.

According to the representative of the BMU, marginal reduction costs are not expected to be higher in Germany than in other European countries. Therefore, no competitive disadvantage from emissions trading will arise. The representative of electricity company A adds that abatement costs are often overstated, and his company does not expect any negative effects on the German economy and its competitive situation. On the contrary, if an emissions trading scheme replaces some of the present measures, numerous companies would probably have better competitive chances due to the cost efficiency of an emissions trading scheme.

The representative of mineral oil company B, however, doubts the argument that Germany has comparatively high marginal abatement costs because companies would have already reduced a lot of these in the past. The representative of the chemical company, too, assumes that abatement costs in Germany could be higher than in other states, since German energy standards are on a high level and energy efficiency in Germany is above average. The representative of mineral oil company B, however, thinks that this assumption is unfounded since experience has shown that unexpected reduction potentials will be found after the implementation of emissions trading. Even if German companies had already reduced significantly, there would still be large potentials for further reductions. For example, looking at his company, significant reductions had been made. Nevertheless further reductions would be possible, although the company is already comparatively energy efficient. Of course, it could be possible that reduction costs will increase on a long-term basis. But this is the idea of emissions trading and will be balanced by the market price of permits: if reduction costs increase, the price for emissions permits would increase, too, thus making more expensive investments pay for themselves.

Although the representative of the chemical company also imagines Germany to be a net-seller of permits, the representative questions whether companies or the government will be the seller of those permits. The representative fears that the German government might not allow inter-state trading between companies until it is sure that Germany has reached its EU burden sharing target. And even if this target is reached, it is quite unclear whether companies or the German government will sell the permits. The representative of the BMU concedes that it has to be considered whether the government or the companies will receive the profit from selling those additional permits. The representative of the gas company explains that his company will profit in both cases, since the demand for natural gas will increase in any case due to its relatively low CO₂ content. In addition, the representative of the chemical company declares that his company would benefit from emissions trading if an early base year is chosen and early actions are considered.

Attitudes towards the European Commission proposal for a directive on an EU-wide emissions trading scheme²²

Three of the interviewees agree with the European Commission proposal. The representative of the BMWi even considers the proposal to be the most intelligently designed system he knows. Except for negligible details, the representative of the BMU and the representatives of electricity company A also agree with the proposal.

The other companies either partly criticise the directive or even oppose it. For example, the representative of mineral oil company A agrees with the proposal as being a step into the right direction. He principally supports the proposal. Regarding the long term, that means trading from the year 2008 on, his company would even support the present proposal, but recommends to start trading with a voluntary pilot phase. Some of the other representatives also think that a voluntary pilot phase is politically reasonable. However, as the representative of mineral oil company A explains, this pilot phase could only be national, and it could start before EU trading begins in 2005. Besides, the representative suggests, penalties for non-compliance should be rather low at the beginning.

The representative of electricity company B most extensively criticises the proposal. In his opinion several aspects in the design would curtail the efficiency of the scheme. First, he criticises that the proposal only covers carbon dioxide and not multiple gases. The representative of mineral oil company B, however, explains that his company favours emissions trading only covering carbon

²² Note that at the time when the interviews were conducted, the proposal was not yet officially published. It was only available as a draft version.

dioxide. This makes the scheme easier to be administered. And CO₂-based emissions trading would already cover the majority of greenhouse gas emissions.

Second, the representative of electricity company B continues, the scheme is limited to the countries of the EU, and an extension to additional countries has not yet been decided upon. The representative of the BDI adds that because the proposal is bound to the targets of the Kyoto Protocol and the EU Burden Sharing Agreement, his organisation fears competitive disadvantages for German companies compared to companies of countries that are not subject to binding emissions targets of the Kyoto Protocol. As the representative of the chemical company outlines, it could be disadvantageous for his company if, for example, the United States would not be part of the trading regime.

Third, the representative of electricity company B carries on, the options of Joint Implementation and the Clean Development Mechanism are not yet part of the scheme. Fourth, the proposal limits participation to some industry branches and to larger production sites only. Even though this could make the scheme easier to be administered, efficiency will be low since it only covers less than 50 percent of EU-wide carbon dioxide emissions. Further criticism by the representative of electricity company B regards the requirements for monitoring, reporting, and verification of emission reductions. In agreement with the representative of the natural gas company, he states that those would be too complicated and bureaucratic. If all those requirements really have to be fulfilled, this would require a lot of time and would cause considerable costs for the companies.

And finally, the representative of electricity company B criticises that rules for the allocation of permits will not be centrally designed but developed individually by each EU Member State. The representative fears significant difference in the strength of the allocations, especially between those countries with a negative burden sharing target and those with a positive one. In addition to this criticism, the representative of the BDI believes that the proposal would conflict with existing German environmental instruments, namely with the current voluntary agreements.

5 Interpretation of the Findings

Both the quantitative and the qualitative analyses reveal the rather complex and diverse opinions of companies regarding emissions trading. Extrapolations valid for all companies surveyed are only partly possible. Therefore, this section only condenses the most significant findings that can be drawn from the analysis. In the following, each of these findings will be formulated as a thesis that will be discussed and underpinned by combining the relevant results from both the quantitative and the qualitative analyses.

Thesis 1: The level of knowledge regarding emissions trading among German companies is very limited. Therefore, a formation of opinion within companies has yet to start. There is great need for information, especially among small and medium sized enterprises.

This thesis is not surprising for “experts” in the debate. Surprising, however, is the extent to which companies are not informed, as the quantitative analysis reveals. For example, almost two thirds of the companies surveyed frankly state that they are either “poorly informed” or “not informed” about the issue of emissions trading. At the same time, only one quarter of the companies state that they strategically deal with the issue of emissions trading. More specifically, roughly two thirds of all companies did not know the *Green Paper on greenhouse gas emissions trading within the European Union*, which was already published in March 2001. Regarding the draft of the *Proposal for a Directive of the European Parliament and of the European Council establishing a framework for greenhouse gas emissions trading within the European Community* published in June and (revised) in September 2001, a staggering 74% of the companies admit not being informed about it. If it is further considered that 20% of the companies state they have an emissions trading expert in their company, and one can possibly argue that this share in our survey is rather high for German companies as a whole (see above), then it appears that the level of knowledge of the majority of the non-expert companies regarding emissions trading is even more limited.

These findings are confirmed by the expert interviews conducted. All interviewees uniformly agree that the current state of information among the majority of German companies is very low. As some representatives state, for most of the companies, the degree of information does not even suffice to constructively participate in the debate because they lack understanding of the basic functioning of emissions trading. Especially, some suggest, small and medium sized enterprises are not well informed. This, in turn, is backed by our

quantitative findings.²³ The uninformed share among medium sized companies is much higher than that among large companies. While 81% of medium sized companies are not informed about the green paper, 58% of the large companies are not informed about it. Similarly, 88% of medium sized companies do not know about the proposal for a directive on emissions trading, with 76% of large companies not being informed.

Thesis 2: Concerning the issue of emissions trading, companies do not properly participate in the formation of opinion within their business associations.

As our quantitative analysis displays, only about one third of the companies are involved in the formation of opinion of their business association related to the issue of emissions trading. In contrast, regarding general environmental issues, at least two thirds of the companies are involved in their sector associations' formation of opinion. This is not because business associations do not provide information. As the findings reveal, two thirds of the companies receive information about emissions trading from their business associations. However, the information might not be properly designed to satisfy companies' specific need. Therefore, large numbers of those that do receive information from their associations (69%) are not sufficiently informed on the issue.

The analysis of the interviews helps to further clarify this problem. As the representative of the BMU acknowledges, some companies and business associations had strengthened their capacities on this issue. However, they still do not provide sufficient information. The representative of the BDI replies that he actively engages in providing companies and other business associations with relevant information. Other business associations also engage in communicating emissions trading. Yet, the representative admits that those companies that do not themselves seek information on the issue might not be sufficiently informed. However, our quantitative analysis shows that such a deficit in information also relates to the government: only 10% of the companies surveyed have received information from the government about emissions trading.

Thesis 3: Companies do not have a preference for a specific policy instrument. Similarly, there is no preference for a specific design of an emissions trading scheme.

Asked for their general preferences on environmental policies and measures, almost one third of the companies state that they prefer a mandatory cap and trade-emissions trading to reduce industrial greenhouse gas emissions, while another third prefer standards and directives for energy efficiency. The remaining

²³ As stated above, the share of replies in our survey seems rather low to allow a definite argumentation regarding large and medium sized companies.

third prefer to further improve the voluntary agreements by, for example, strengthening targets and adding sanctions for non-compliance. Therefore, no representative pattern can be extrapolated. Companies had the opportunity of marking multiple options, but here, no trend could be extrapolated either. The multiple responses are equally spread over all possible answers. Yet, interestingly, the energy companies are with 60% the branch with the most multiple responses. This might indicate a rather high consent to implementing different policies and measures. In contrast, almost three quarters of the chemical companies surveyed plead for further improving the existing voluntary agreements. Yet, 38% of these companies approve at the same time the implementation of an emissions trading scheme.

Likewise, concerning the design of an emissions trading scheme, our data does not suggest common patterns of preferences. The disparity among the answers given by the experts interviewed especially displays the complexity of the issue. Therefore, it can be safely assumed that there is no general opposition to mandatory participation in a trading scheme: when companies were asked to give reasons for whatever position they have on the European Commission proposal for a directive on EU-wide emissions trading, not one company criticises the mandatory nature of the proposal, although some criticise the proposal on other aspects or in general.

This assumption is further backed by the interviews which even leads to the impression that there is a strong preference for a mandatory scheme. All interviewees except one highlighted that a mandatory scheme would be preferable, and voluntary participation would be second-best. One representative points out, similar to others, the basic idea of emissions trading: the more companies participating, the lower the overall marginal reduction costs and the more cost-efficient the scheme. Interestingly, even the representative of the chemical company strongly favours mandatory emissions trading with as many sectors as possible taking part, because voluntary emissions trading would end up in a “club of permit sellers” without any true demand. However, several representatives take a pilot phase into consideration in order to gain experience. This pilot phase could be either voluntary or mandatory. Most of those suggesting a voluntary pilot phase state at the same time that participation should be as broad as possible right from the beginning.

Thesis 4: The majority of companies does not anticipate emissions trading to be a significant cost burden to their business, but to be either neutral in costs or a prospective source of income.

This thesis, which is supported by the postal survey as well as by various statements from the interviews, questions the general impression that German companies would fear the costs of an emissions trading scheme. Apparently,

many agree with the economic theory that emissions trading is the most efficient instrument for companies.

As our survey shows, 47% of the companies anticipate emissions trading in general to be either neutral in costs or to be a possible source of income. Only 39% believe it will be a cost burden. More specifically, when companies were to assess the effects they expect from the European Commission proposal for a directive on EU-wide emissions trading, 37% assert it to be either neutral in costs or a possible source of revenues, while only 31% anticipate the directive to be a cost factor.²⁴ However, a large part of the latter had already tried to calculate the possible effects of the directive.

A similar picture is provided by the qualitative analysis. The majority of the nine representatives interviewed can imagine Germany becoming a net-seller of permits. Interestingly, also the representative of the chemical company imagines Germany to be a net-seller. Reasons are that Germany is already close to its EU burden sharing target. Furthermore, marginal reduction costs are not expected to be higher in Germany than in other European countries.

Conclusions

This study illustrates that the “Attitudes of German Companies regarding the Implementation of an Emissions Trading Scheme” are not homogeneous. The diversity of opinions on the issue is very high. Single positions cannot claim to be representative. Equally, as our interviews manifest, opinions among experts are quite diverse. This is already one of the main conclusions of this paper. Those companies and business associations that already formulated a clear and unambiguous position on emissions trading cannot claim to be representative of German companies as a whole. In fact, despite certain details, opinions neither correlate to industry sectors nor to companies’ size.

Indeed, one conclusion is obvious: both the level of information among the majority of the companies surveyed and participation in the work of respective business associations is very limited. The WUPPERTAL INSTITUTE therefore sees the necessity of supporting companies and business associations in their capacity building on the issue. Both the successful international climate negotiations as well as the current German climate protection strategy increase the probability that an emissions trading scheme will be implemented within a few years. Yet, as this study shows, most of the companies so far do not anticipate the future importance of the issue of greenhouse gases and emissions trading.

²⁴ Some companies did not answer this question. Therefore, the total percentage does not add up to 100%.

Companies should be supported in the preparations for an emissions trading scheme at an early stage because this instrument creates new strategic options: the need to mitigate climate change may require deep cuts in emissions far below current levels. This would entail far-reaching consequences for companies and large-scale investments. Therefore, companies need to know what strategies work best to achieve their goal and to adapt to a “carbon constraint future”. Emissions trading as a tool is very effective in reducing emissions to lower levels in a cost-efficient manner. Companies need to receive regulatory certainty well ahead of time to adapt to these challenges. This can be accompanied by building up new institutions and networks, thereby supporting companies in improving their capacities. German (and European) companies should also be supported in positioning themselves on the new market of emission permits. All in all, this requires a concerted effort of companies, business associations, the government, governmental institutions and other organisations, such as scientific research institutes or environmental NGOs. The WUPPERTAL INSTITUTE is currently developing an information brochure for companies on emissions trading.

Annex I

Questionnaire of the postal survey (in German) /
Fragebogen der postalischen Umfrage

1. Name des Unternehmens:

2. Das Unternehmen lässt sich folgender Wirtschaftsbranche zuordnen:

- | | |
|---|---|
| <input type="checkbox"/> Energieversorgung | <input type="checkbox"/> Grundstoffchemie |
| <input type="checkbox"/> Kokerei und Mineralölverarbeitung | <input type="checkbox"/> Sonstige chemische Industrie |
| <input type="checkbox"/> Verarbeitung von Steinen und Erden | <input type="checkbox"/> Glasgewerbe und Keramik |
| <input type="checkbox"/> Zementherstellung | <input type="checkbox"/> Papiergewerbe |
| <input type="checkbox"/> Metallerzeugung und -bearbeitung | <input type="checkbox"/> Sonstiges: |

3. Das Unternehmen ist im Besitz von Verbrennungsanlagen mit einer Leistung von über 20 Megawatt:

- ☐ Ja ☐ Nein

4. Der Energiekostenanteil an den Gesamtkosten beträgt *in etwa*:

- | | | |
|------------------------------------|--|--------------------------------------|
| <input type="checkbox"/> unter 5 % | <input type="checkbox"/> 5 bis 10 % | <input type="checkbox"/> 10 bis 15 % |
| <input type="checkbox"/> über 15 % | <input type="checkbox"/> nicht bekannt | |

5. Das Unternehmen gehört folgenden (eventuell mehreren) Unternehmensverbänden an:

- ☐ BDI ☐ Fachverbände:

6. Das Unternehmen ist aktiv in die *umweltpolitische* Arbeit dieser Verbände eingebunden:

- ☐ BDI ☐ Fachverbände ☐ nicht eingebunden

7. Welche der folgenden Positionen zum Thema Treibhausgasemissionen trifft Ihrer Meinung nach am ehesten zu:

Treibhausgasemissionen sind ...

- ☐ ein politisches Thema, strategisch für Ihr Unternehmen wenig wichtig
- ☐ eine wesentliche Kostenbelastung für Ihr Unternehmen, daher betriebswirtschaftlich wichtig
- ☐ ein künftig strategisch wichtiges Thema für Ihr Unternehmen mit einem lukrativen Marktpotential

8a. Um einen Teil des Klimaschutzziels der Bundesregierung im Rahmen der Industrie umzusetzen, sollte die Bundesregierung Ihrer Meinung nach folgende Maßnahmen ergreifen (Mehrfachnennungen möglich):

- ☐ Standards und Richtlinien für Energieeffizienzen einführen bzw. verschärfen
- ☐ einen Emissionshandel mit verbindlichen Emissionsgrenzen einführen
- ☐ die Ökologische Steuerreform weiterentwickeln, etwa Ausnahmen reduzieren und die Steuersätze anheben
- ☐ das System der freiwilligen Selbstverpflichtungen weiterentwickeln, etwa verschärfte Ziele und deutliche Sanktionsmechanismen bei Nicht-Erfüllung einführen
- ☐ keine weiteren Maßnahmen einführen
- ☐ Sonstiges:

b. Die Instrumente sollten dabei zu einem sinnvollen Policy-Mix verknüpft werden:

- ☐ Ja ☐ Nein ☐ weiß nicht

9. Wie schätzen Sie tendenziell die Auswirkungen des Kyoto-Protokolls auf Ihr Unternehmen ein:

- ☐ als Kostenbelastung und Wettbewerbsnachteil, da andere Länder geringere oder gar keine Reduktionssziele haben
- ☐ als eine Einnahmequelle, etwa durch den Export von Technologien, Know-how oder Investitionen in Klimaschutzmaßnahmen
- ☐ kostenneutral
- ☐ weiß nicht

10. Antzipieren Sie, als Unternehmen von den Instrumenten des Kyoto-Protokolls, besonders der „Gemeinsamen Umsetzung“ (Joint Implementation) und dem „Mechanismus für eine umweltverträgliche Entwicklung“ (Clean Development Mechanism), Gebrauch zu machen:

- ☐ Ja ☐ Nein ☐ weiß nicht

11. Beschäftigt sich das Unternehmen strategisch mit dem Thema Emissionshandel:

- ☐ Ja ☐ Nein

12a. Auf welchem Level werden die Themen Emissionshandel und dessen betriebswirtschaftliche Auswirkungen in Ihrem Unternehmen behandelt :

- ☐ Vorstandsebene ☐ Arbeitsebene ☐ gar nicht
☐ Führungsebene

b. Wie schätzen Sie die Auswirkungen eines Emissionshandels dabei tendenziell ein:

- ☐ als eine Kostenbelastung ☐ als eine Einnahmequelle
☐ als kostenneutral

13. Woher bezieht das Unternehmen seine Informationen zum Thema Emissionshandel:

- ☐ eigener Experte im Unternehmen ☐ vom BDI
☐ von den Fachverbänden ☐ von Umweltverbänden
☐ von einer Unternehmensberatung ☐ von der Bundesregierung
☐ von der europäischen Kommission ☐ Sonstiges:

14. Ist das Unternehmen aktiv in die Meinungsbildung der Verbände zum Thema Emissionshandel eingebunden:

- ☐ BDI ☐ Fachverbände ☐ nicht eingebunden

15a. Das Unternehmen betrachtet den eigenen Informationsstand über das Thema Emissionshandel als:

- ☐ sehr gut ☐ gut ☐ gering
☐ keine Information

b. Informationsbedarf besteht besonders bezüglich:.....
.....

16. Das Unternehmen ist über das Grünbuch der Europäischen Kommission zu einem europäischen Emissionshandel informiert:

☐ Ja ☐ Nein

17. Das Unternehmen ist über den jüngsten Vorschlag (*Draft* vom 31.05.2001) der Europäischen Kommission informiert:

☐ Ja ☐ Nein

18a. Das Unternehmen hat bereits mögliche Auswirkungen dieser Richtlinie auf die eigene Tätigkeit durch Abschätzungen vorgenommen:

☐ Ja ☐ Nein

b. Wie schätzen Sie die Auswirkungen dabei tendenziell ein:

☐ als eine Kostenbelastung ☐ als eine Einnahmequelle
☐ als kostenneutral ☐

19a. Das Unternehmen hat folgende Position zur Richtlinie:

☐ befürwortende Haltung ☐ ablehnende Haltung
☐ weiß nicht

b. Gründe für diese Haltung sind:
.....

Vielen Dank !

Annex II

Interview guide (in German) /
Interviewleitfaden

A) NATIONALE UND EU-WEITE UMWELTPOLITIK

1. Welche Maßnahmen sollten eingeführt werden, um Treibhausgase im Bereich der Industrie zu verringern ?
2. Welche Politiken und Maßnahmen sollten auf EU-Ebene angewendet werden ?
3. Wie bewerten Sie die unterschiedlichen umweltpolitischen Instrumente:
 - Ökologische Steuerreform
 - Standards und Richtlinien
 - Emissionshandel
 - freiwillige Selbstverpflichtungen, Sonstiges
4. Nach welchen Kriterien bewerten Sie die Instrumente ?
 - Betriebswirtschaftliche oder volkswirtschaftliche Kosteneffizienz
 - Ökologische Zielführung
 - Verteilungseffekte
 - Administrative Transparenz

B) INFORMATIONSTAND EMISSIONSHANDEL UNTER DEUTSCHEN UNTERNEHMEN

5. Bezüglich welcher Aspekte besteht besonderer Informationsbedarf
 - Verbindung von Maßnahmen und Umweltproblemen aufzeigen ?
 - Aufklärung über die Notwendigkeit von Maßnahmen (Bsp. 80% Reduktionsziel)
6. Woher erhalten Unternehmen in der Regel ihre Informationen ?
7. Was sollte eine Broschüre vor allen Dingen beinhalten, was sollte sie eher nicht beinhalten ?
8. Sollte die Broschüre Gestaltungsspielräume eines Emissionshandels diskutieren ?
9. Was halten Sie für (politische) Hürden bei der Einführung eines Emissionshandels ?

C) FRAGEN ZUM DESIGN EINES EMISSIONSHANDELS

10. Woher könnten Definitionen für die Teilnahme an einem Emissionshandel kommen?
 - Aus den bestehenden Selbstverpflichtungen
 - Aufgrund einer Branche
 - Aufgrund von industriellen Prozessen
 - Energieintensität
11. Welche Branchen oder (Prozesse) sollten an einem Handel teilnehmen?
12. Präferieren Sie eine verpflichtende Teilnahme oder eine freiwillige mit der Wahlmöglichkeit zwischen Instrumenten ?
13. Wie beurteilen Sie die Vereinbarkeit eines ET mit bestehenden Maßnahmen, und welche Verknüpfungen wären gegebenenfalls möglich ?
14. Was sind Ihre Vorstellungen bezüglich der Verteilung der Zertifikate ?
15. Welche Rolle in der Ausführung eines ET kommt staatlichen oder privatwirtschaftlichen Institutionen zu, welche könnten an Selbstverwaltungsorgane der Industrie delegiert werden ?
16. Welche weiteren Aspekte im Design eines Emissionshandels sind kritisch für Sie ?

D) AUSWIRKUNGEN EINES EMISSIONSHANDELS AUF UNTERNEHMEN UND BRANCHEN

17. Wie schätzen Sie Auswirkungen eines Emissionshandels auf Ihr Unternehmen allgemein ein ?
 - Kostenbelastung und Wettbewerbsnachteil
 - als eine Einnahmequelle, etwa durch den Export von Technologien , Know-how oder Investitionen in Klimaschutzmaßnahmen
 - kostenneutral
18. Variiert Ihre Einschätzung, wenn der Handel national, EU-weit, oder international unter dem Kyoto Protokoll stattfinden würde ?
19. Was glauben Sie, wie sich ein Emissionshandel auf andere deutsche Unternehmen auswirkt ?
20. Was halten Sie von dem jüngsten Vorschlag (*draft* vom 31.05.2001) der Europäischen Kommission für eine Richtlinie zum EU-weiten Emissionshandel ?
21. Wie glauben Sie wirkt sich dieser Vorschlag auf Ihr Unternehmen aus ?
22. Wie glauben Sie wirkt sich dieser Vorschlag auf die deutsche Wirtschaft aus ?

Annex III

Overview of the results of the mailed questionnaire

Question (subject)	All Companies	Energy Sector	Chemical Sector
Does the company own a combustion installation with a capacity of more than 20 MW ?	Yes: 23 companies (47%) No: 24 companies (49%) n.A.: 2 companies (4%)	Yes: 10 companies (50%) No: 9 companies (45%) n.A.: 1 company (5%)	Yes: 4 companies (36%) No: 7 companies (64%)
What is the percentage of energy costs to total costs?	n.A.: 6 (12%) < 5%: 15 (31%) 5-10%: 6 (12%) 10-15%: 6 (12%) >15%: 13 (27%) unknown.: 3 (6%)	n.A.: 3 (15%) <5%: 7 (35%) 5-10%: 2 (10%) 10-15%: 1 (5%) >15%: 6 (30%) unknown: 1 (5%)	n.A.: 3 (27%) <5%: 3 (27%) 5-10%: 2 (18%) 10-15%: - >15%: 1 (9%) unknown: 2 (18%)
The company is a member of a business association:	BDI: 13 (27%) Sector-specific business association: 45 (92%) n.A.: 4 (8%)	BDI: 3 (15%) Sector-specific business association: 17 (85) n.A.: 3 (15%)	BDI: 6 (55%) Sector-specific business association: 11 (100%) n.A.: -
Is the company actively involved in environment-related work of that association?	BDI: 10 (20%) Sector-specific business association: 33 (67%) Not involved: 15 (31%) n.A.: 2 (4%)	BDI: 2 (10%) Sector-specific business association: 12 (60%) Not involved: 6 (30%) n.A.: 2 (10%)	BDI: 5 (45%) Sector-specific business association: 8 (73%) Not involved: 3 (27%) n.A.: -
Which of the following statements regarding the issue of greenhouse gas emissions is most appropriate?	1. "a political issue, therefore strategically of little importance to companies": 18 (37%) 2. "a drastic cost burden, therefore important to a company's business management": 18 (37%) 3. "of future strategic importance to companies with a lucrative market potential": 18 (37%) n.A.: 2 (4%)	1. : 5 (25%) 2. : 5 (25%) 3. : 13 (65%) n.A.: 1 (5%)	1.: 8 (73%) 2.: 3 (27%) 3.: 2 (18%) n.A.: -
To realise a part of Germany's greenhouse reduction commitments within the industrial sector, the government should...	1. Implement new or strengthen existing standards and directives for energy efficiency: 15 (31%) 2. Implement an emissions trading scheme with mandatory emission caps: 15 (31%) 3. Improve the Ecological Tax Reform, e.g. cancel exceptions and increase tax rates: 7 (14%) 4. Improve Voluntary Agreements, e.g. strengthen targets and add sanctions for non-compliance: 17 (35%) 5. Not implement any further measures: 9 (18%) 6. Others: 11 (22%) n.A.: 3 (6%)	1.: 11 (55%) 2.: 11 (55%) 3.: 6 (30%) 4.: 3 (15%) 5.: 4 (20%) 6.: 2 (10%) n.A.: 1 (5%)	1.: 1 (9%) 2.: - 3.: - 4.: 8 (73%) 5.: 2 (18%) 6.: 4 (36%) n.A.: 1 (9%)

n.A. = no answer

Question (subject)	All Companies	Energy Sector	Chemical Sector
Instruments should be combined to a reasonable policy mix?	Yes: 29 (59%) No: 5 (10%) Do not know: 12 (25%) n.A.: 3 (6%)	Yes: 15 (75%) No: 1 (5%) Do not know: 3 (15%) n.A.: 1 (5%)	Yes: 6 (55%) No: 1 (9%) Do not know: 2 (18%) n.A.: 2 (18%)
How do you estimate the economic effects of the Kyoto Protocol on your company?	1. as a cost burden and competitive disadvantage: 23 (45%) 2. as a source of income: 5 (10%) 3. neutral in costs: 16 (33%) 4. Do not know: 4 (8%) n.A.: 1 (2%)	1.: 7 (35%) 2.: 5 (25%) 3.: 6 (30%) 4.: 2 (10%) n.A.: -	1.: 5 (45%) 2.: - 3.: 4 (36%) 4.: 1 (9%) n.A.: 1 (9%)
Do you anticipate to make use of the Kyoto Mechanisms, namely "Joint Implementation" and the "Clean Development Mechanism"?	Yes: 11 (23%) No: 16 (33%) Do not know: 19 (38%) n.A.: 3 (6%)	Yes: 6 (30%) No: 5 (25%) Do not know: 8 (40%) n.A.: 1 (5%)	Yes: 1 (9%) No: 7 (64%) Do not know: 1 (9%) n.A.: 2 (18%)
Does your company strategically deal with the issue of emissions trading?	Yes: 12 (24%) No: 36 (73%) n.A.: 1 (2%)	Yes: 7 (35%) No: 13 (65%) n.A.: -	Yes: 3 (27%) No: 7 (64%) n.A.: 1 (9%)
At which corporate level does your company deal with the issue of emissions trading?	1. Top Management: 10 (20%) 2. Middle Management: 17 (35%) 3. Lower Management: 2 (4%) 4. not dealt with: 23 (47%) n.A.: 2 (4%)	1.: 4 (20%) 2.: 7 (35%) 3.: 1 (5%) 4.: 9 (45%) n.A.: -	1.: 2 (18%) 2.: 6 (55%) 3.: 1 (9%) 4.: 4 (36%) n.A.: 1 (9%)
How, in general, do you estimate the economic effects of emissions trading?	1. as a cost burden: 19 (39%) 2. neutral in costs: 11 (22%) 3. as a source of profit: 12 (24%) n.A.: 7 (14%)	1.: 4 (20%) 2.: 4 (20%) 3.: 8 (40%) n.A.: 4 (20%)	1.: 4 (36%) 2.: 3 (27%) 3.: 3 (27%) n.A.: 2 (18%)
From where does your company receive information about the issue of emissions trading?	1. own expert within the company: 10 (20%) 2. from sector business association: 34 (69%) 3. from consultancies: 3 (6%) 4. from the European Commission: 4 (8%) 5. from the BDI: 11 (22%) 6. from environmental NGOs: 7 (14%) 7. from the German government: 5 (10%) 8. Others: 14 (29%) n.A.: 5 (10%)	1.: 3 (15%) 2.: 12 (60%) 3.: - 4.: 1 (5%) 5.: 1 (5%) 6.: 3 (15%) 7.: 2 (10%) 8.: 8 (40%) n.A.: 1 (5%)	1.: 4 (36%) 2.: 9 (81%) 3.: 2 (18%) 4.: 2 (18%) 5.: 5 (45%) 6.: 3 (27%) 7.: 2 (18%) 8.: 3 (27%) n.A.: -
Is your company actively involved in the formation of opinion of your business association concerning the issue of emissions trading?	1. Involved in BDI: 8 (16%) 2. Involved in sector business associations: 17 (35%) 3. Not involved: 31 (63%) n.A.: 1 (2%)	1.: 2 (10%) 2.: 4 (20%) 3.: 16 (80%) n.A.: -	1.: 3 (27%) 2.: 5 (45%) 3.: 6 (54%) n.A.: -

n.A. = no answer

Question (subject)	All Companies	Energy Sector	Chemical Sector
How do you self-evaluate your company's degree of information on emissions trading?	1. very well informed: 5 (10%) 2. well informed: 14 (29%) 3. poorly informed: 25 (51%) 4. not informed: 5 (10%)	1.: 2 (10%) 2.: 5 (25%) 3.: 12 (60%) 4.: 1 (5%)	1.: 3 (27%) 2.: 3 (27%) 3.: 5 (45%) 4.: -
Is the company informed about the <i>green paper</i> of the European Commission?	Yes: 17 (35%) No: 31 (63%) n.A.: 1 (2%)	Yes: 5 (25%) No: 14 (70%) n.A.: 1 (5%)	Yes: 7 (64%) No: 4 (36%) n.A.: -
Is the company informed about the draft version of a proposal for a directive on EU-wide emissions trading of the European Commission?	Yes: 10 (20%) No: 36 (73%) n.A.: 3 (6%)	Yes: 3 (15%) No: 15 (75%) n.A.: 2 (10%)	Yes: 3 (27%) No: 7 (64%) n.A.: 1 (9%)
Did your company already estimate possible economic effects from the implementation of the directive on EU-wide emissions trading?	Yes: 9 (18%) No: 39 (80%) n.A.: 1 (2%)	Yes: 3 (15%) No: 17 (85%) n.A.: -	Yes: 4 (36%) No: 7 (64%) n.A.: -
How do you estimate the effects of the implementation of the directive on EU-wide emissions trading?	1. as a cost burden: 15 (31%) 2. neutral in costs: 11 (22%) 3. as a source of profit: 7 (14%) n.A.: 16 (33%)	1.: 2 (10%) 2.: 4 (20%) 3.: 4 (20%) n.A.: 10 (50%)	1.: 4 (36%) 2.: 4 (36%) 3.: - n.A.: 3 (27%)
Does your company support or does it oppose the proposal for a directive on EU-wide emissions trading?	1. Support it: 4 (8%) 2. Oppose it: 9 (18%) 3. Do not know: 27 (55%) n.A.: 9 (18%)	1.: 3 (15%) 2.: 2 (10%) 3.: 10 (50%) n.A.: 5 (25%)	1.: - 2.: 3 (27%) 3.: 6 (54%) n.A.: 2 (18%)

n.A. = no answer